

# Wildlife And Traffic

Balancing the Confluence of Two Ecologies



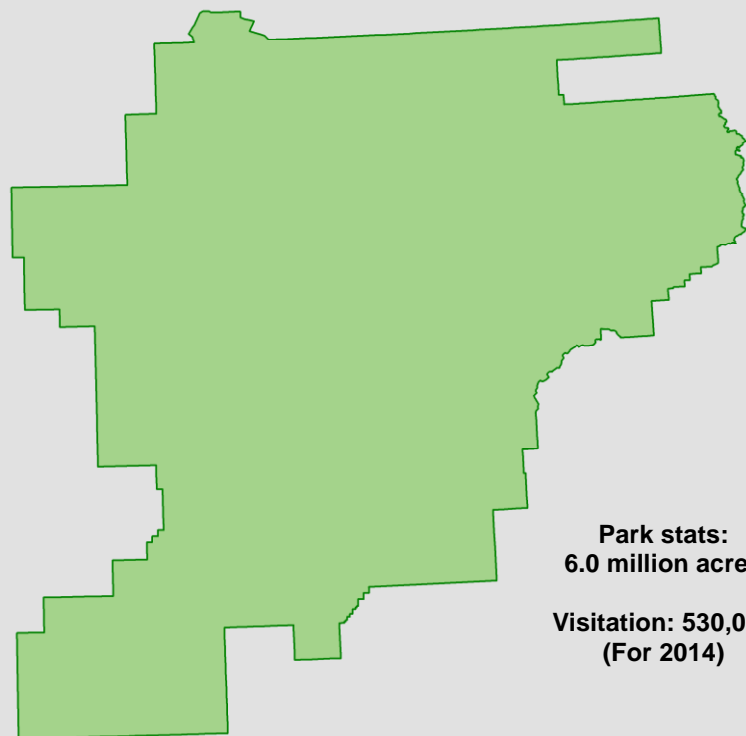
William C Clark  
Road Ecologist  
Road Ecology Program

# Outline

- Perspective of place
- Road Ecology Program – what we do
- 2014 Results
- Adaptive Management and Moving Forward

## Denali National Park and Preserve

Alaska Region  
National Park Service  
U.S. Department of the Interior



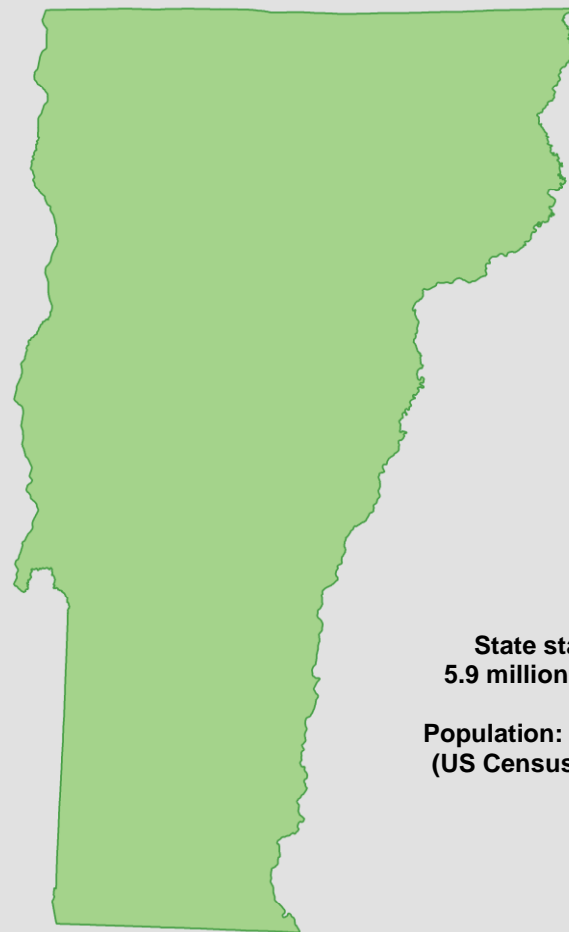
**Park stats:**  
**6.0 million acres**  
**Visitation: 530,000**  
**(For 2014)**

Path: T:\Res\Mgmt\Road\_Ecology\Data\Projects\Resources\Day\_2015.mxd

Date: 5/8/2015

## The Great State of Vermont

Alaska Region  
National Park Service  
U.S. Department of the Interior



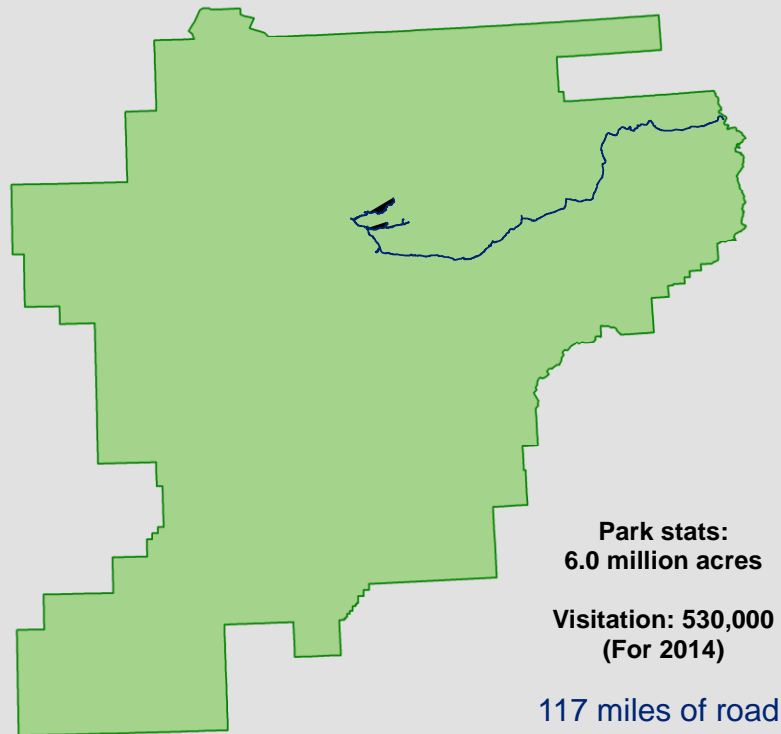
**State stats:**  
**5.9 million acres**  
**Population: 625,741**  
**(US Census, 2010)**

Path: T:\Res\Mgmt\Road\_Ecology\Data\Projects\Resources\Day\_2015\_comparison.mxd

Date: 5/7/2015

## Denali National Park and Preserve

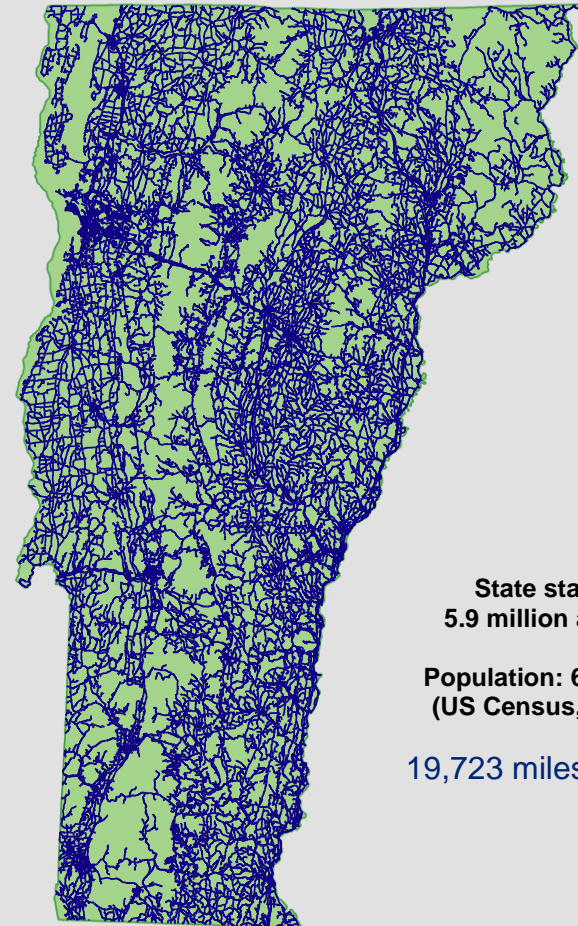
Alaska Region  
National Park Service  
U.S. Department of the Interior



**Park stats:**  
**6.0 million acres**  
**Visitation: 530,000**  
**(For 2014)**  
**117 miles of road**

## The Great State of Vermont

Alaska Region  
National Park Service  
U.S. Department of the Interior

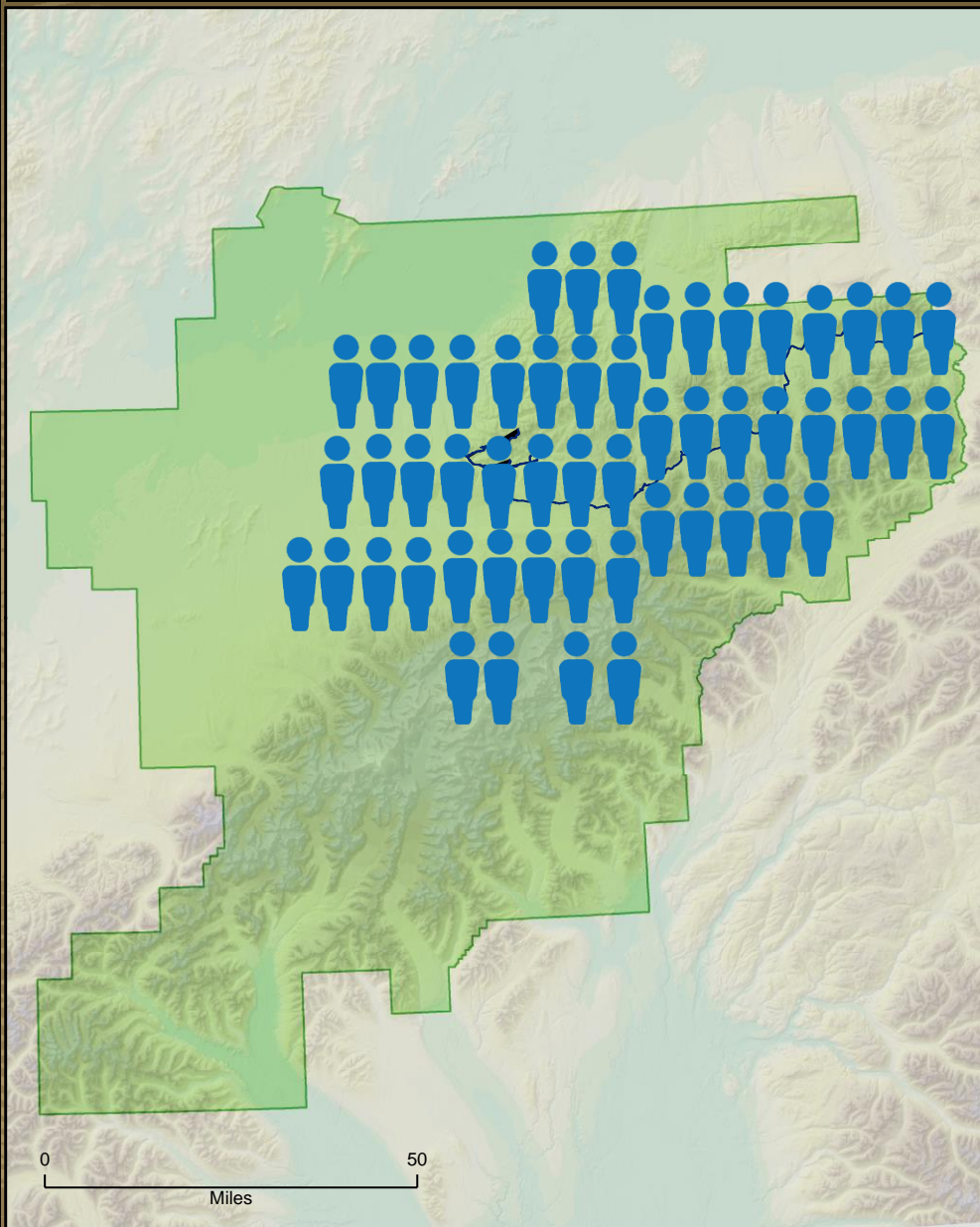


**State stats:**  
**5.9 million acres**  
**Population: 625,741**  
**(US Census, 2010)**  
**19,723 miles of road**



# Denali National Park and Preserve

Alaska Region  
National Park Service  
U.S. Department of the Interior

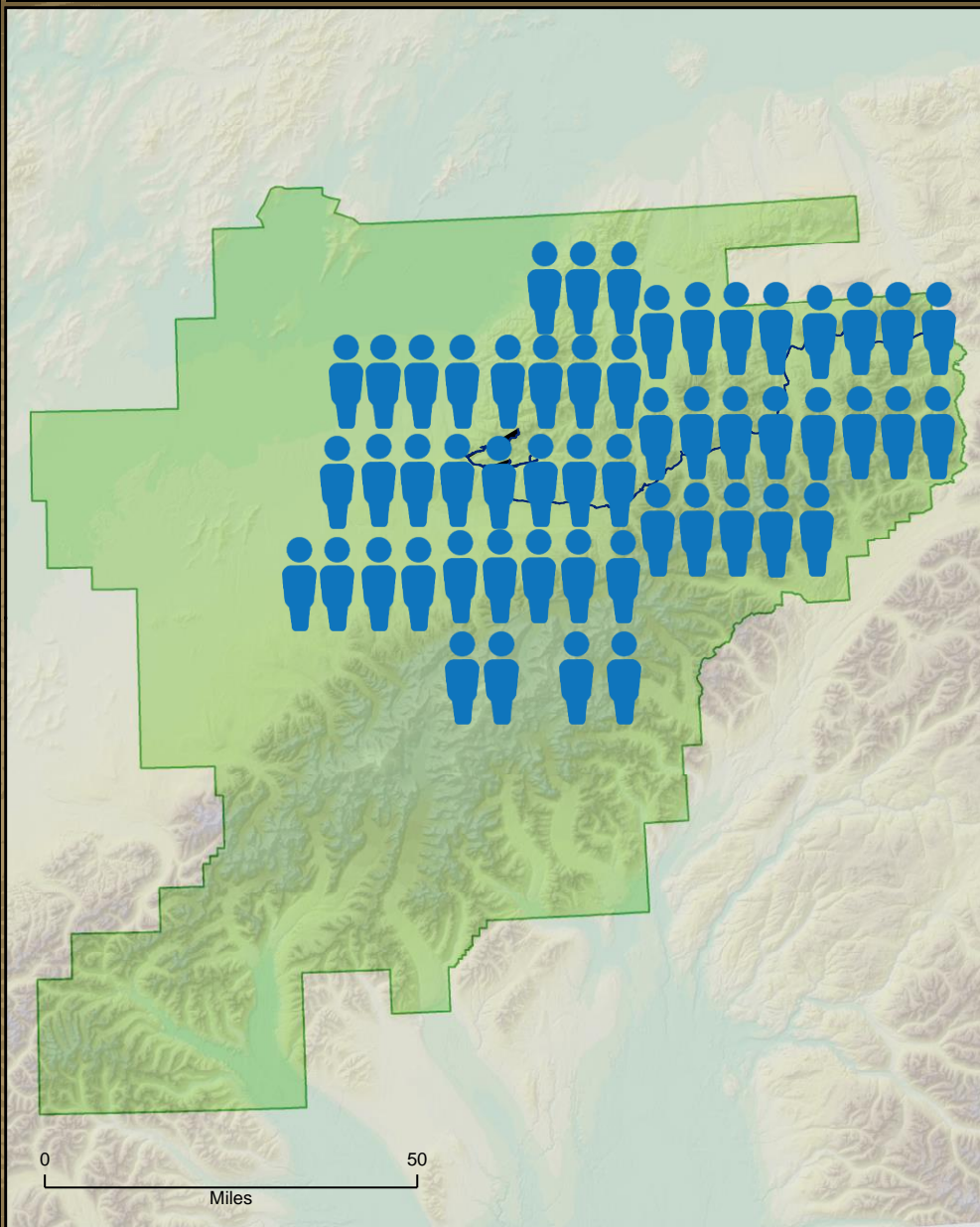


0 50  
Miles

 = 10,000 visitors

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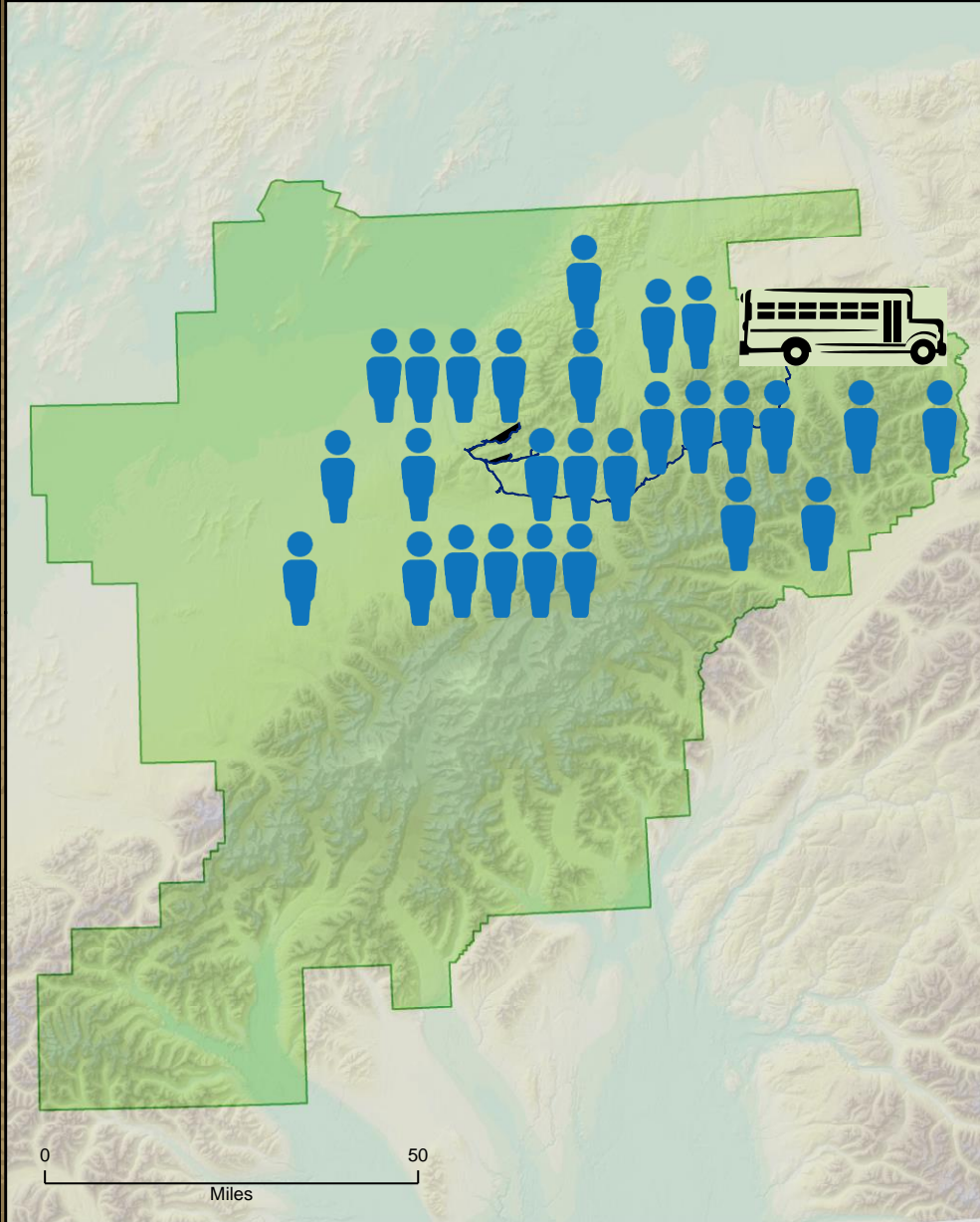


0 50  
Miles

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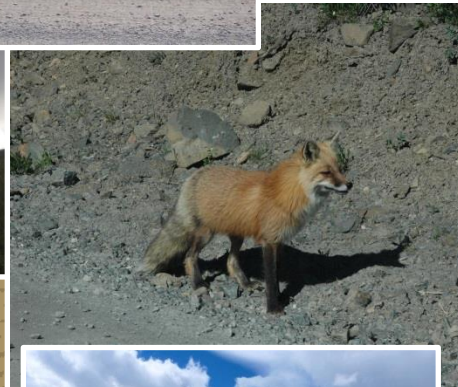


~270,000  
passengers in  
2014

 = 10,000 visitors



## Two Predominate Motives: wildlife viewing and mountain viewing





# Road Ecology Program

- Protect Wildlife
- Maintain High Quality Visitor Experience

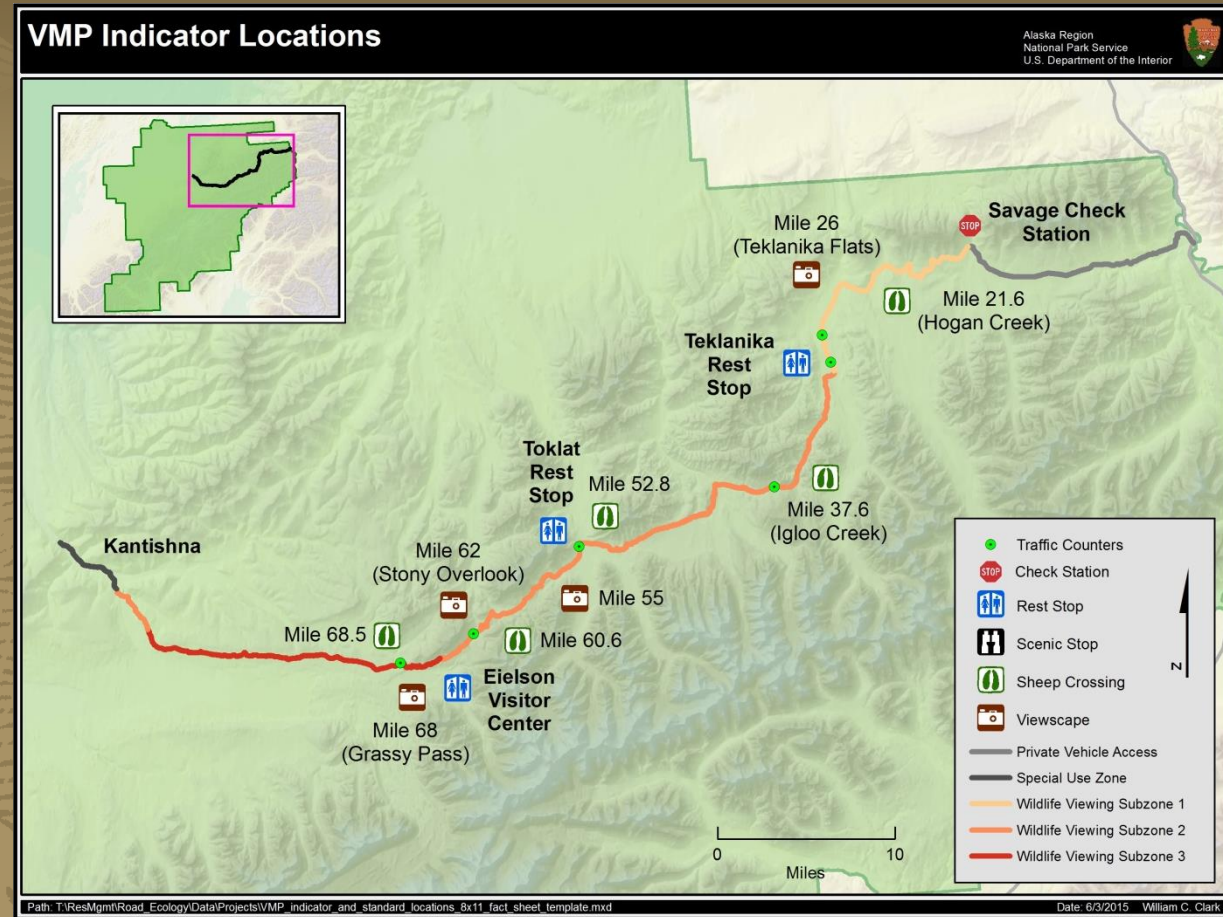




# Vehicle Management Plan (2012)

7 indicators were established

1. Number of vehicles at a wildlife stop
2. Number of vehicles at rest stops
3. Number of vehicles in a viewscape
4. Gaps in traffic allowing wildlife to cross the road (sheep gaps)
5. Night time traffic limits
6. Large vehicle traffic limits
7. Hiker wait time



- Also note, the standards (allowable values) change depending on the subzone along the road

# Results of 2014

Indicator	Status
Number of Vehicles at Wildlife Stop	Met in all three subzones
Number of Vehicles at Rest Stop	Exceeded four times; at least once per site
Number of Vehicles in a Viewscape	Met at all sites
Sheep Gap Spacing	Met at two, exceeded at three sites
Night Time Traffic	Exceeded at four of six sites*
Large Vehicle Traffic	Undeterminable – technology
Hiker Wait Time^	Met through out road corridor

\*It is hypothesized, that part of this is due to the 2014 flooding events and required road maintenance

^This standard is based on a 5-yr average.

# Sheep Gap Spacing (2014)

	21.6	37.6	52.8	60.6	68.5
Standard	90%	90%	90%	90%	90%
2014	84.6	92.9	85.3	82.9	93.3

Milepost 21.6

Missing by 5.4% with sample size ( $n$ ) = 26

If just **2** more hours had a 10-minute gap we are at 92.3%

Milepost 52.8 ( $n=34$ )

Just **2** more hours = 91.2%

Milepost 60.6 ( $n=35$ )

Just **3** more hours = 91.4%



# Data Quality and Adaptation





**Adaptive management will enable us to successfully protect wildlife and other park resources while providing a high-quality visitor experience.**

**Questions?**





**Adaptive management** will enable us to successfully protect wildlife and other park resources while providing a high-quality visitor experience.

Questions?



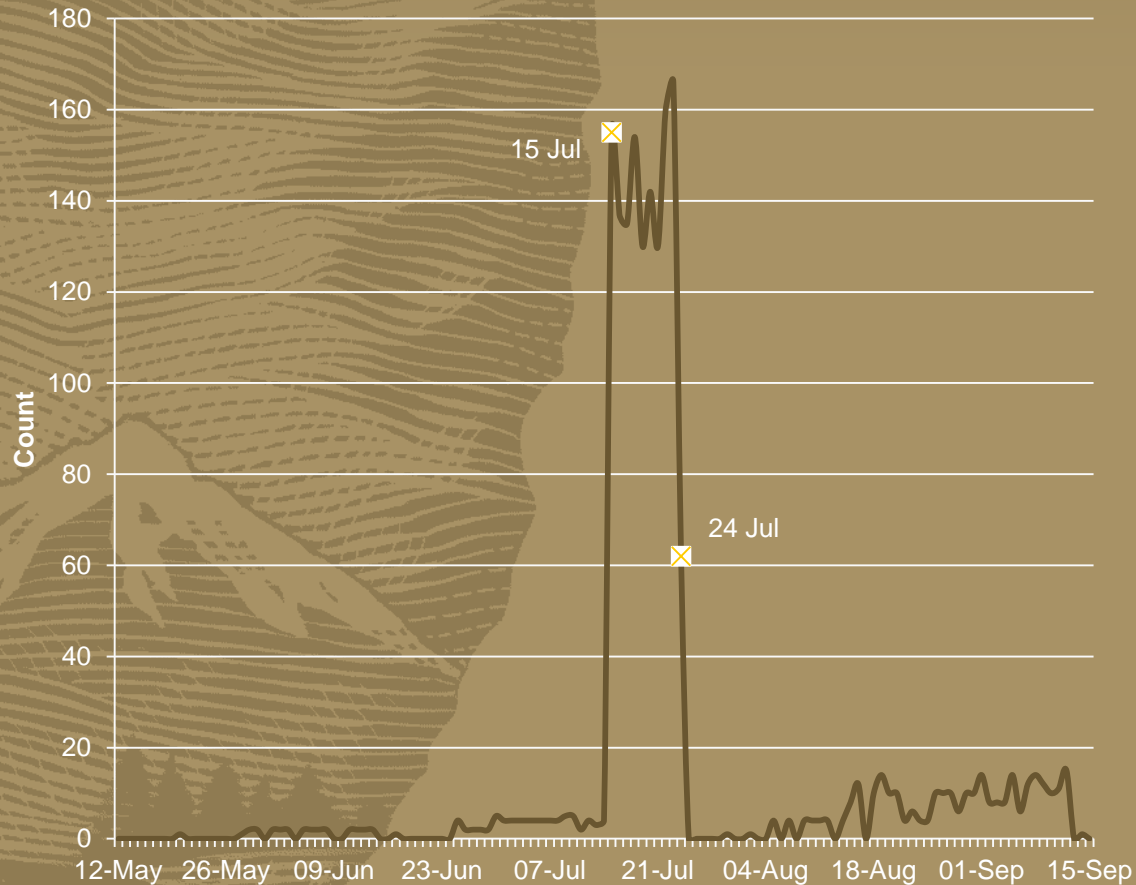
# Adaptive management

- a decision-making process whose goal is to reduce uncertainty through **system monitoring** and **self-evaluation**.

# GPS Data Quality

- In 2013 there was a large data anomaly:

*Boundary Errors Per Day*



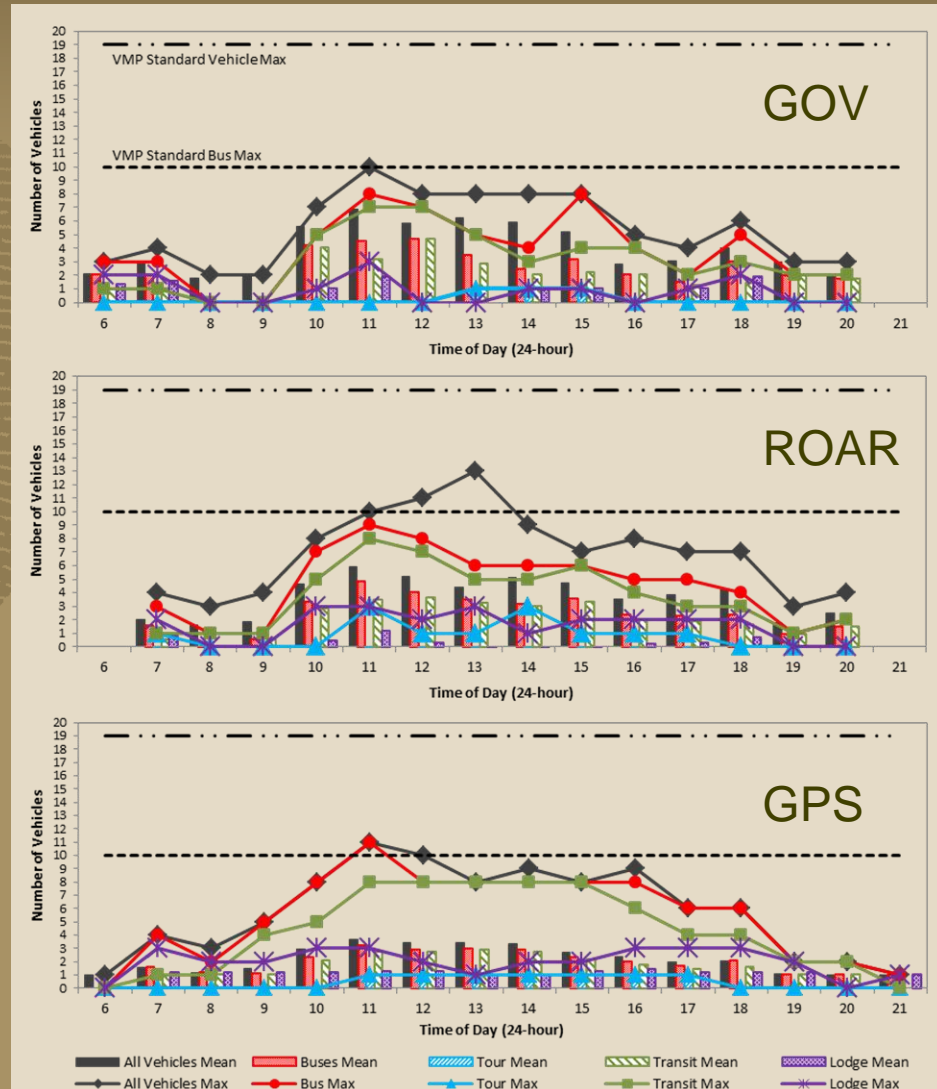


# 2014 Echo Data and Data in Wrong The Place

ID	OBJECTID	LinkID	Date_	Time	Hour_	Assets	TripNumber	Stop	DataQuality
1	149651	41783.137	5/24/2014	10:07:42 AM	10	137	1	Teklanika	okay
2	149650	41783.137	5/24/2014	10:24:36 AM	10	137	1	Teklanika	okay
3	149643	41783.137	5/24/2014	2:31:57 PM	14	137	1a	Teklanika	okay
4	149642	41783.137	5/24/2014	2:32:01 PM	14	137	1a	Teklanika	echo
5	149641	41783.137	5/24/2014	2:32:04 PM	14	137	1a	Teklanika	echo
6	149640	41783.137	5/24/2014	2:49:26 PM	14	137	1a	Teklanika	echo
7	149639	41783.137	5/24/2014	2:49:29 PM	14	137	1a	Teklanika	echo
8	149638	41783.137	5/24/2014	2:49:44 PM	14	137	1a	Teklanika	okay
9	149791	41783.141	5/24/2014	8:31:12 AM	8	141	2	Teklanika	okay
10	149790	41783.141	5/24/2014	8:50:39 AM	8	141	2	Teklanika	okay
11	149783	41783.141	5/24/2014	12:57:42 PM	12	141	2a	Teklanika	okay
12	149782	41783.141	5/24/2014	1:15:22 PM	13	141	2a	Teklanika	okay
13	150016	41783.143	5/24/2014	9:38:43 AM	9	143	3	Teklanika	okay
14	150015	41783.143	5/24/2014	9:56:11 AM	9	143	3	Teklanika	okay
15	150008	41783.143	5/24/2014	1:37:33 PM	13	143	3a	Teklanika	okay
16	150007	41783.143	5/24/2014	1:55:00 PM	13	143	3a	Teklanika	okay
17	150075	41783.144	5/24/2014	2:43:48 PM	14	144	4	Teklanika	okay
18	150074	41783.144	5/24/2014	3:01:05 PM	15	144	4	Teklanika	okay
19	150067	41783.144	5/24/2014	6:39:20 PM	18	144	4a	Teklanika	okay
20	150066	41783.144	5/24/2014	6:57:27 PM	18	144	4a	Teklanika	echo
21	150065	41783.144	5/24/2014	6:57:31 PM	18	144	4a	Teklanika	echo
22	150064	41783.144	5/24/2014	6:57:49 PM	18	144	4a	Teklanika	okay
23	150190	41783.146	5/24/2014	8:26:22 AM	8	146	5	Teklanika	okay
24	150189	41783.146	5/24/2014	8:46:57 AM	8	146	5	Teklanika	okay
25	150182	41783.146	5/24/2014	12:36:40 PM	12	146	5a	Teklanika	okay
26	150180	41783.146	5/24/2014	12:36:44 PM	12	146	5a	Teklanika	echo
27	150181	41783.146	5/24/2014	12:36:44 PM	12	146	5a	Teklanika	echo
28	150179	41783.146	5/24/2014	12:52:35 PM	12	146	5a	Teklanika	echo
29	150178	41783.146	5/24/2014	12:52:39 PM	12	146	5a	Teklanika	echo
30	150177	41783.146	5/24/2014	12:52:40 PM	12	146	5a	Teklanika	echo
31	150176	41783.146	5/24/2014	12:52:43 PM	12	146	5a	Teklanika	echo
32	150175	41783.146	5/24/2014	12:52:48 PM	12	146	5a	Teklanika	okay

# Implications for 2015

- Discontinuing use of fleet-based GPS system
- More ROAR
- More government observations



Data for Eielson Visitor Center (rest stop)



# Take Homes

- We live in a beautiful place with few roads
- However, we still have a large “population” that must be managed
  - Protect wildlife & maintain quality visitor experience
- 2014 data supports that we are good at spreading traffic volumes
- Sheep gap standards would be met if surveyed at all hours of day (we are really, really close anyway!)
- Given the 2014 data, we are adapting toward more ROAR and government observations for 2015



# Thank you

If you have any questions beyond today:

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Road Ecology Program

Denali NP&P

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